WORKSHEET TO CHECK COMBUSTION AIR

Use this worksheet to determine if you have a confined or unconfined space.

SPACE: Includes the room in which you will install mechanical equipment plus any adjoining rooms with doorless passageways or ventilation grills between the rooms.

1. Determine the volume of the space (length x width x height).

   Length x Width x Height = _____cu.ft. (volume of space)
   EXAMPLE: Space size 22ft (length) x 18ft. (width) x 8ft. (ceiling height) =3168cu.ft. (volume space)
   If additional ventilation to adjoining room is supplied with grills or openings, add the volume of these rooms to the total volume of the space.

2. Divide the space volume by 50 cubic feet to determine the maximum Btu/Hr the space can support.

   _____ (volume of space) ÷ 50 cu.ft. (Maximum Btu/Hr the space can support)
   EXAMPLE: 3168 cu.ft. (volume of space) ÷50 cu.ft. =63.3 or 63,300 (max. Btu/Hr the space can support)

3. Add the Btu/Hr of all fuel burning appliances in the space.

   Vent-free fireplace _____Btu/Hr
   Gas water heater* _____Btu/Hr
   Gas Furnace _____Btu/Hr
   Vented Gas Heater _____Btu/Hr
   Gas Fireplace Logs _____Btu/Hr
   Other Gas Appliances*_____Btu/Hr
   Total =_____Btu/Hr

   Example:

Gas Water Heater		40,000 Btu/Hr
Vent-free Fireplace		+33,000 Btu/Hr
Total	=	73,000 Btu/Hr

*Do not include direct-vent gas appliances. Direct-vent draws combustion air from and vents to the outdoors.

4. Compare the maximum Btu/Hr the space can support with the actual amount of Btu/Hr used.

   _____Btu/Hr (maximum the space can support) Total from item #2
   _____Btu/Hr (actual amount of Btu/Hr used) Total from item #3
   EXAMPLE: 63,300 Btu/Hr (maximum the space can support)
   73,300 Btu/Hr (actual amount of Btu/Hr used)

The space in the above example is a confined space because the actual Btu/Hr used is more than the maximum Btu/Hr the space can support. You must provide additional fresh air. Your options are as follows:

A. Rework the worksheet, adding the space of an adjoining room. If the extra space provides an unconfined space, remove the door to the adjoining room, add a ventilation grill within 12 inches of the ceiling or by adding ventilation grills between rooms, one within 12 inches of the ceiling and one within 12 inches of the floor. Size of each grill must be at least 1" per 1000 Btu's provided as per the IMC subsection 702.3
B. Vent room directly to the outdoors. Two-openings shall be provided one within 12 inches of the floor and one within 12 inches of the ceiling. One of the following methods may be used to vent directly to the outdoors as per IMC subsection 703:
   1. Provide direct openings to the outdoors, which are at least 1 square inch per 4000 BTU's.
   2. Duct horizontal openings with a net free area of openings with a min. of 1 sq.in. per 2000 BTU's.
   3. Duct vertical openings with a net free area of openings with a min of 1 sq.in. per 4000 BTU's.

If the actual Btu/Hr used is less than the maximum Btu/Hr the space can support, the space is an unconfined space. You will need no additional fresh air ventilation.